

# AMATEUR RADIO



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**DECEMBER, 1935**

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## EDITORIAL

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What a grand hobby Amateur Radio is! Unlike nine out of every ten hobbies, co-operation is the basis of any successful work. An outstanding DX QSO, an hour-long chat with an interstate Ham, or even a rubber stamp QSO of the "ur sigs R6 pse QSL, QRU" variety all require co-operation to some extent at least. The sense of co-operation that exists is assuredly part of the foundation of our amateur spirit, that elusive, indefinable something of which we are all so proud. At various times we hear remarks that the Ham Spirit is not what it used to be, but we can be certain that the person making the remark is himself at fault, the lack of spirit of which he complains is a figment of his own mind, caused through a wrong attitude to his hobby. We have had this fact very forcibly driven home to us during the last month in many ways. One of our Hams has just returned from a long trip abroad, and the description he has given us of the welcome, of the help, of the hospitality that he received wherever he went—well, to anyone who does not know what the amateur spirit is and what it stands for, the story of that trip would sound like a novel written by a person of somewhat Utopian ideals. Again, coming much nearer home, we have had some outstanding examples of the extremes of amateurs in connection with the misunderstanding that has occurred over one of the rules of the recent DX contest. It is always so easy to be wise after the event, no one in their wildest dreams could have imagined that what did happen would happen, and those of us who have had experience in running contests heartily sympathise with the Contest Committee. As Hams they sincerely endeavoured to make the contest as perfect as possible, but to read some of the letters that have come to hand one would imagine that they were deliberately trying to wreck contests for all time. How significant is the fact that the writers of that type of letter are the very men who are always complaining that amateur radio is not what it was! And how significant it is also that the persons who are admittedly the crack DX men of the country, men who's every action is a credit to their hobby, are the very men who have written sincere letters of constructive criticism, letters that are at the same time helpful and encouraging. The former type is living his radio life in the wrong way, and the sad part is that he can neither appreciate that nor the fact that he is missing the best in his hobby.

The little radio world in which we live, our shack, plus our Institute, is very similar to the great world of life. The more we put into life the more we get out of it. How true is this of our hobby, but how many realise the fact? Consideration for others in life leads towards happiness and contentment, and consideration for and co-operation with others in amateur radio leads to its fullest enjoyment. Again, a sense of proportion and fairplay in life earns one the reputation of being "a sport" and "playing cricket". In our hobby these virtues typify practically all the word "HAM" stands for. If a man keeps his radio in its correct perspective to his ordinary life, if he doesn't let it interfere with his work or his home, and equally as important, with his health, and if he brings the spirit of fair play into all his dealings with his fellow enthusiasts, then he has gone a long way towards earning for himself the name of a HAM, whatever his technical qualifications.

Life itself we must live intensely unless, of course, we are going to be content to merely drift. "Few recognise opportunity in this life because it is usually disguised as hard work", someone said, and hard work needs relaxation in order to sustain itself. If we look at our hobby in the right way it provides the greatest and best relaxation imaginable. Our attitude must not only be a personal one, but it must embrace our fellow amateurs, too, for a spirit of co-operation, of consideration and of fair play is the spirit of amateur radio.

Amateur radio is perfect if we make it so, we, individually, are the variable factor.

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**As this is our Christmas number we would like to wish all our readers a very Merry Christmas and a Happy, Prosperous New Year. May 1936 be the biggest, brightest and best year that "Amateur Radio" and Amateur Radio has ever known.**

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# Transmitting Aerials for the Ultra High Frequencies

By VK3ML Technical Editor.

## 1. Need for Arrays or Beam Aerials.

In the short space of time at my disposal to-night it will not be possible to deal, at any great length, with the need for beam aerials on the ultra sible to deal, at any length, with the need for beam aerials on the ultra high frequencies. However, practical tests have shown us that these frequencies suffer from both light absorption and non-reflection from the Heaviside layers. Thus, to get any decent effect we must concentrate the rays in the desired direction; to keep them where they belong, so to speak. Definite proof of the need for beam arrays has been published of late in QST showing practical results obtained with and without arrays. As you are aware, ranges up to 200 miles are an everyday event in the U.S.A. now, and this is only possible with beam aerials. In Australia we have many active stations, particularly on 56mc, establishing contacts of 50-100 miles without any difficulty, and using very low power. In the May issue of "Amateur Radio" you will see for yourselves what VK2BP has to say about the ultra high frequencies, and the results he has obtained. Thus, we have sufficient proof to state that to do good on the 56 and 112mc bands the aerial employed must definitely be of the beam type.

## Types Available.

There are two major types of arrays available—the horizontal and vertical. Unfortunately, I have been able to find no definite data as to the efficiency of either, but, on one hand, we have something definite and assuring from the American results with their more popular vertical arrays; yet, on the other hand, the British Post Office has stated that a horizontal array will show a gain of about 15 Db over the vertical type. Thus, the choice of the horizontal or vertical plane is a matter for the ham to find out for himself by carrying out experiments. This is one of the many fields that the amateur

can find amusement in when dabbling on the ultra-highs.

## Space Required for Erection.

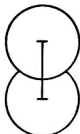
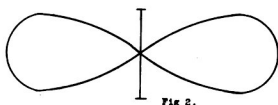
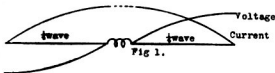
It will become apparent as we go further into this discussion that a large number of array designs are within reach of the amateur. In the past we have been prevented from erecting 7 and 14 mc beam aerials owing to the rather large area required. However, we now have something that is within reach of us all; not only for home construction, but for portable work also.

## Theory of Aerials and Reflectors.

Just before going into details of the practical construction of a beam array let us see how they operate theoretically first. A half wave element fed in the centre is commonly known in America as a "Doublet," and in England a "Dipole." The voltage and current distribution in a half wave dipole is like this:

If such an element be erected in clear space where no surrounding objects can possibly influence it, it has a definite field, both with reference to its axis and a plane perpendicular to its axis. In a plane perpendicular to its axis it radiates equally well in all directions. In other words, a vertical dipole will radiate equally well in all directions. In a plane through its axis, the field is strongest at points at right angles to the axis and weakest off the ends of the axis. In other words, if field strength tests were taken from an aeroplane above a vertical dipole, the signals would be very much weaker than when flying on any side of the dipole. The introduction of any object near the dipole will cause the impedance of the dipole to be lowered, and such objects absorb part of the energy radiated. But if the object is capable of re-radiating the energy absorbed it will naturally cause a change in the field pattern. Such a change is commonly known as "interference," and the resulting field called the "interference pattern." If the interfering

object be another dipole, it will absorb and re-radiate the energy with little or no loss. Upon these facts are based the systems to be discussed. It should be borne in mind that although most of this discussion refers to the dipole type of half wave aerial the same principle of interference, etc., applies to any half wave aerial, voltage fed or otherwise.

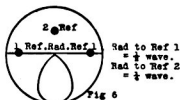
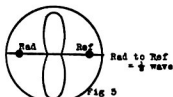
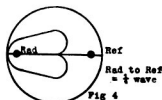


Now, if we operate two dipoles spaced half a wavelength apart, and feed them both directly from the transmitter, in phase, we obtain an array that is directional at right angles to the line of the array. This is termed a "broadside system," since the main beam is broadside to the line of the array. The field pattern produced by two dipoles so fed would take this form (Fig. 2).

If the currents in each wire were out of phase the system is termed an "edgewise" system, since the main beam is in the line of the aerial array. Thus from the same two dipoles as we had in the broadside system we can change the field pattern a complete right angle by simply making the currents in one out of phase with those in the other. Thus we get a pattern like this (Fig. 3).

We now have two very important features of arrays—firstly, that two or more dipoles separated by one half wave length and fed in phase will

radiate at right angles to the line of the array. Secondly, by feeding out of phase the direction of radiation is changed and the result will be a beam along the line of the array. Directly fed arrays are generally referred to as being in phase, and those indirectly fed as being out of phase. The latter meaning more the type employing reflectors. The whole function of beam



arrays depends upon these two characteristics.

As stated just now, if a dipole be placed near a similar one that is being excited, absorption and re-radiation will take place. The unexcited aerial will be called a reflector. The phase relationship between these two aerials will depend upon the distance between them (still assuming that only one is excited). If the separation be equivalent to half a wavelength, then the currents will be in phase, the results being a broadside array. When the interval is one quarter wavelength the currents will be out of phase and the array will be an "edgewise" one.

A brief explanation of the function of reflectors will not be out of place here. When current flows in the aerial, a magnetic field is set up around the wire which travels outwards in all directions with the speed of light. This field thus arrives at the reflector wire after it leaves the aerial by a

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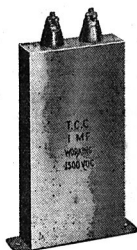
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time interval corresponding to a lag of 90 deg. If the current is an alternating one, the magnetic field also varies and is cut by the conductor forming the reflector. By Lenz's law, this causes a current to flow which tends to reduce the magnetic flux producing it, i.e., a current lagging behind by 180 deg. (opposite in phase). Since the magnetic field has already a lag of 90 deg. owing to its time to travel from aerial to reflector, the current flowing in the reflector lags 270 deg. in phase behind that flowing in the aerial. The magnetic field from this, therefore, is travelling forward in the direction of the aerial, and arrives in phase with the originating magnetic field, while the field travelling in the direction aerial to reflector is, as has already been mentioned, cancelled out. Thus the wave travelling in the forward direction is increased and that travelling backwards diminishes in intensity.

Thus a combination of two arrangements, namely, a series of aerials spaced half a wavelength apart, with a further series of reflectors spaced behind at a distance of a quarter of a wavelength, constitute a very effective beam or directive system. The greater the number of aerials and reflectors, the stronger the resultant beam.

## Types of Arrays Available.

Having got the necessary theoretical material for beam aerial construction in our minds, we can now play with bits of wire and slide rules, and construct arrays of many shapes and designs. However, let us only deal with the simpler and easier to erect varieties.

### The Parabolic Beam.

As we have observed before, when two dipoles are spaced quarter wavelength apart, the phase difference is 90 deg. Thus if we place a dipole a quarter wavelength behind a radiator the field pattern would assume this form (Fig. 4).

But if the separation was increased to half a wavelength the picture would appear (Fig. 5).

Since the phase difference is 0 deg. at half a wavelength separation and the radiation is broadside. Now a combination of these two patterns using a reflector a quarter wave behind the radiator and two more erected half wave to either side of the existing radiator, the array would assume the

shape of a parabola, with the existing aerial at the focal point. The combined effect would produce a pattern like this (Fig. 6).

The results obtained from such a parabolic beam array will often cause a signal increase of 5-7 Db in the direction of the transmitted beam. I have had many communications with chaps using this system in Queensland and New South Wales, and although they find this type very effective, it does not compare with the multi-element type to be discussed in a moment.

This, of course, can be understood, because the number of elements is limited, and, as we have found, the greater the number of elements used the more concentrated the beam produced. We now come to the

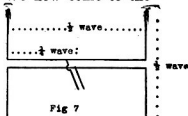


Fig 7

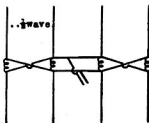


Fig 8

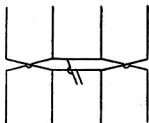


Fig 9

### H Type Aerial.

This type of aerial has found favour in the British Post Office, I believe. It is capable of being rotated easily, and then again it is directional in two ways. In this case we have two dipoles directly excited and spaced half a wavelength apart. Drawn on paper it would appear thus (Fig 7)

Very little support is required if the aerials are made of, say,  $\frac{1}{2}$ -inch

copper tubing. All that is necessary is sufficient support to prevent whipping of the tubing in the wind. The H type may be further developed by the addition of a driven element either side of the existing elements. Here again, we may expect greater concentration of the beam. The array would now take the form of four elements spaced half a wavelength apart in a plane at right angles to the desired direction. There are two methods available of coupling the elements to the feed lines. Firstly, with the aid of coils in their centres, and secondly, by reversal of the feed line wires to obtain the same phase relationship in each of the radiators (Fig. 8).

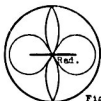


Fig 10

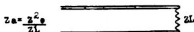
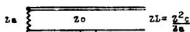


Fig 11.



Fig 12.

It is possible to keep adding elements at half wave intervals, thus strengthening the resultant beam more and more. The two arrays just described have the advantage of being workable on two frequencies, one twice that of the other. Of course the efficiency is not as great on the frequency, for which the array is NOT designed. However, there is a marked improvement over an ordinary non-directional aerial. When an array is worked at twice its frequency, we may expect the field pattern to assume this shape: Fig. 9. And we notice that it is directional in four ways, but the beam passing

through the line of the array is spread out over a wider angle, and not as strong as the beam at right angles to the array (Fig. 10). The effect of the change to the higher frequency on the feed system will be discussed when we come to transmission lines.

For those who desire to lay a beam in some definite direction, and gain signal strength in that direction, it is only necessary to add reflectors behind each of the radiators of the array. The spacing will be roughly one quarter wave length from the radiator. An array of this type using four reflectors and four radiators, should have a gain of about 10 Db, which is around the 50 per cent. mark. This is really the most suitable type for the serious-minded ham. Results have shown that it is capable of long ranges with low power, and requires a very small space in the backyard for erection. However, it is unidirectional, and one must consider the location of fixture and direction of working. Ross Hull's beam array is on exactly the same principle as ours, except that he has favoured end or voltage feed of the radiators. In his more recent experiments he has adopted the dipole-coil-in-centre combinations. When it comes to multiple arrays one must pay close attention to impedance matching and correct phasing, and the centre-fed type lends itself more readily in this direction. For full details on the matching of aeriels with the coil in the centre, you should refer to "Amateur Radio" for October, 1934, under the heading "Two Wire Untuned Transmission Lines."

As said before, the designs of the arrays in use to-day are innumerable, and with a sound knowledge of the principle of the things, the ham certainly can find many avenues for experimenting. Having discussed the fundamentals of the array part of the beam, let us now consider how we can best get the power from the transmitter to the array—in other words, methods of feeding.

In dealing with the subject of transmission lines, you will notice that use is made, to a very great extent, of the transformer effect of a quarter wave section of transmission line. It is used to match impedances. In the H type aerial use is made of the fact that a standing wave has a pure resistance component at both its

maxima and minima. By construction the sections of the feed lines that connect the radiating elements to the feed line from the transmitter each a quarter wavelength long, they be made to function like a transformer, and be used to match the load impedance of the aerial to the main transmission line impedance. The theory involved is very brief.

The impedance  $Z_L$ , looking into a quarter-wave section of characteristic impedance  $Z_0$  when terminated by impedance  $Z_a$  is

Similarly, the impedance at the other end when terminated by  $Z_L$  is

Thus to match two impedances  $Z_a$  and  $Z_L$  it is only necessary to insert a quarter-wave section of characteristic impedance.

Now the impedance  $Z_a$  can be the aerial impedance, which is approximately 75 ohms for a dipole, and  $Z_L$  can be the characteristic impedance of a transmission line connecting the quarter-wave length sections to the transmitter. The success of the idea depends on the building of quarter-wave sections of the required characteristic impedance. For example, if we desire to match an H aerial to a transmission line of characteristic impedance 440 ohms, the impedance necessary for the quarter wave section to be is:

Therefore, we would only have to design this section so that it would have a characteristic impedance of 182 ohms to connect to our 440 ohm transmission line, and if you refer to your "Amateur Radio" for October, 1934, you will find tables giving the necessary diameter and spacing of two conductors to give this figure. The whole arrangement can be got from these tables, and the erection of an array is no heavy task that involves mathematical calculations. The article referred to is called "Two Wire Untuned Transmission Lines." As a matter of fact, this quarter-wave section principle could be well adopted for dipole operation on 3, 5, 7 and 14 mc as well, to decided advantage.

### High Frequencies.

Mention some time ago was made that an array could be designed to operate at a harmonic or higher frequency, and explained the resulting field patterns. Now, when it comes to feeding the array, we find ourselves

fortunate in that there is no need to alter feed line lengths or aerial tuning condensers. It is necessary to design the array to work on the lower frequency. When operated at the higher frequency we find that the impedance matching transformer effect is not limited to quarter-waves, but may be applied to any line that is an odd number of quarter wavelengths long. All we have to do is to place the 440 ohm feed line at such a distance from the aerial that its length is some odd quarter wavelength long at the higher frequency. This can be done if the array is designed for, say, 28mc, and operated also on 56mc. The change of the aerial which would normally take place when changing frequency will look after the impedance match of the transmission line at the transmitter end. Sufficient data for the construction of arrays is found in the article "Directional Antennae for Higher Frequencies," published by "A.R." for November, 1934.

### Practical Considerations.

After all this rather heavy theory you probably want some concrete practical figures for beam array manufacture. As a matter of fact, I have been saved a lot of trouble in digging this up for you, because you will find in the May issue of "A.R." full details of the required aerial and reflector lengths and separation distances. These figures appear to be accurate, and can be used in the design of almost any type of array. It is well to bear in mind that the length of the aerial is NOT exactly half a wavelength, but 5 per cent. less than the theoretical figure. Then again the length of the reflector is given as 3.5 per cent. longer than the radiator. The separation between aerial and reflector is not quite so important and as sensitive as the radiator and reflector lengths. Care should be taken when erecting these arrays to adhere to the tables very closely, otherwise they are no more efficient than a straight dipole.

**SUPPORT  
YOUR  
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## Electric Condensers

By D. N. LINNETT.

These are the most efficient pieces of apparatus contained in the radio receiver, and have many duties to perform for the radio to function.

One of the most common components to be found in every radio receiver is the electric condenser; in fact it plays a most important part in all transmission and reception of radio signals. Yet it is one of the oldest pieces of electrical apparatus, although even now none other is more efficient because less losses occur when current passes through a condenser than in any other single piece of gear. With careful design and manufacture, moreover, these losses are almost negligible.

The condenser may appear only as several plates separated one from the other, or a small cardboard tube having sealing wax ends and a short of copper wire coming from each.

But it is the condenser that separates the radio frequency from the audio frequency currents, and either of these from the direct current. In the reflex circuit, the condenser is its very life, since it guides the different currents to and from the valve, allowing each to follow its respective path giving a free passage to the audio frequencies while sending the higher ones along another path, or perhaps the capacities will be changed and the opposite effect will result.

The variable type permits the tuning to the frequency of a desired transmitting station from which audible signals originate, and its purpose allows us to change from one station to another. For detecting these radio waves, it is the condenser in grid leak detection that permits the valve to function; while across the rectified power supply, the condenser by-passes the radio energy, preventing it from going through the complicated system of filters.

The condenser is really the heart of the power supply, for upon its properties depend the whole smoothing action of the filter. Without the large capacity, it would be impossible for us to obtain the direct current

free of ripple.

This marvellous condenser, however, was a scientific plaything for centuries, having many peculiar properties that engaged the attention of every investigator of electrical phenomena in every generation. Dean Von Kleist, of the Cathedral Camin, discovered the Leyden Jar in 1745; although it was independently discovered by Peter van Musschenbroech, Professor at the University of Leyden.

In these days, it became a toy that amazed and delighted social gatherings, finding its only use in the discharge killing beetles and birds, merely for the entertainment of the guests. Abbe Nolet sent a discharge through a chain of hundreds of soldiers as a pleasing diversion for the French King, as the shock that they felt made them all jump at the same time.

It was Benjamin Franklin in 1748 who demonstrated the importance of the dielectric in determining the properties of this Leyden Jar, from which has evolved the condenser that we know to-day. This happened only after much research and experiment.

The condenser consists of two or more conducting surfaces approximately parallel, separated each from the other by a dielectric. In its simplest form it is made up of two plates of metal having as large a surface as possible, placed close together and separated either by air or some other dielectric. To reduce it to workable dimensions, each plate is divided up into a number of units; that is cut in two, four, eight, or some other multiple, and all joined together electrically. At the same time, one set of plates is interlaced with the other set similarly sub-divided and coupled up.

Its action can best be explained by comparing electricity to air which is compressible—and so is an electrical charge, both actions under pressure being practically the same.

If we force too much air into a tank, the pressure inside will become so great as to burst the walls of the



tank; and if we force too large a current into a condenser, the voltage or pressure between the plates will build up to such a value as to break down the insulation between the plates.

Assume two containers connected together, one larger than the other with a valve in between. With the valve closed, container A is exhausted of all air, while container B is pumped up to a pressure of a hundred pounds per square inch. A certain number of cubic feet of air have to be pumped into this container to raise the pressure to the required value.

If the pump is supplying a pressure exactly equal to 100 pounds per square inch, as soon as sufficient air has been forced into the tank to cause the internal pressure to exactly equal the pressure of the pump—even though the pump is left running—no more air will be forced into the tank. There is now sufficient air stored in tank B to cause a pressure of 100 pounds, while the air in A is at zero.

With the valve opened suddenly, there will be a condition of one container holding air at high pressure connected directly to a container at zero pressure. The air will then rush through the valve into tank A until the pressure of A equals that of B. If the pump is still running, it will supply the deficiency of A, and the pressure of both would be kept up to 100 pounds.

But when the valve was first opened, the difference of pressure between A and B was equal to 100 pounds. Assuming no friction, etc., there was no opposition to the instantaneous rush of air and a flow meter in the path would register a high reading.

As the air flows into A, however, a pressure is built up, this pressure increasing as the number of cubic feet of air in A increases. As this back pressure builds up, it offers more and more opposition to the flow of air from B, until when the pressure of A and B are equal, no air will flow through the connecting pipe. The air flow meter will then deflect to maximum the instant the valve is opened, and would gradually drop to zero as the pressure became equal.

This is exactly the action that takes

place if we connect a condenser across a battery.

In this case, the battery acts as container B, and the chemical action of the battery causing a pressure of 100 volts is analogous to the pump. When the deficiency of electrons on the positive terminal and the excess on the negative terminal is such as to cause a difference of potential of 100 volts, the chemical action causes no further movement of electrons. If, however, some of the pressure was neutralised, the chemical action would again get busy.

The condenser has taken the place of container A, and in its normal state has no difference of potential between its plates. A switch replaces the valve and an ammeter, which measures electrons per second moving past a given point, is analogous to the air flow meter which measured cubic feet of air per second flowing through it.

The moving element has changed from air to electrons. The air pressure changed to pressure or difference of potential caused by the excess of electrons on the negative terminal trying to reach the deficiency of electrons on the positive terminal.

As the switch is closed, the positive terminal of the battery will attract electrons to it from the condenser plate, and the negative terminal will repel electrons towards the other plate of the condenser. As the electrons move from the first plate, that plate assumes a positive charge; and as an excess of electrons is forced on to the second plate, that plate assumes a negative charge with this movement continuing until the difference of potential between the plates equals the applied voltage of the battery, 100 volts.

With a perfect condenser, once it has become charged, no voltage will flow, and in practice it will be found that any current flow is practically negligible. The break-down only takes place when the applied voltage is too strong for the dielectric to withstand. Those manufactured to-day, however, have to go through a most searching test before they leave the factory, so under normal working conditions should stand up to all voltages because their safety factor is quite large.

## Power Supplies for the Countryman

By H. W. UNGER, VK2UJ.

It is remarkable the number of different types of power supplies that are pressed into service by hams; especially by those living in the country districts where no power mains are available. And one has to be charged with an abundance of enthusiasm to become a ham under these conditions.

The larger type of dynamotors seem to have come into their own during the last few years, and are ideal, except for qvo work. But these were not procurable when many country hams first began operating. Among the various types known to have been used Ford coils are about the most primitive; others include a telephone magneto driven by a hand-grinder, vibrator type eliminators, "B" batteries, wet and dry, H.T. D.C. generators driven by various means of motive power, hand-driven, pedalled, or driven by an engine or electric motor, etc.

There is yet another type which, as far as the writer knows, has never been used by any other experimenter for a radio transmitter power supply. It is a Ford model "T" fly-wheel magneto, and has been in use at VK2UJ for the last twelve months. It is certainly not the ideal by any means, but is a simple arrangement, and very good results can be obtained from it. Ford magnetos can be picked up quite cheaply these days, and may be handy to country hams for a temporary supply until a better type can be installed. It is also useful as an emergency supply. It may interest other hams as a novelty. So a description of the arrangement at VK2UJ will be given.

Two Ford transmission shafts are bolted to the fly-wheel, which carries the magnets. These shafts each have a flange at one end, and are bolted to the fly-wheel with four bolts, so that there is now a shaft each side, and bearings are fitted and mounted on a heavy wooden base, well stayed to keep it square. The coil ring is bolted to the base, so that the air gap between the magnets and coils is about 1/32 in. A three-inch pulley is fitted to one shaft, and is belt driven from the fly-wheel of a 2 h.p. engine.

## Challenge!

The Queensland Division issues a challenge for a Portable Week-end Contest. Conditions are as follow:—

The contest will run from 4 p.m. on Saturday until 4 p.m. on Sunday.

The station must be located independently of its fixed QRA, and must not use pre-erected masts to support the aerial. Trees, etc., are allowable. The primary source of power must be portable by one man, which rules out municipal supplies, heavy m.g. sets, and also using a motor car to drive the generator, etc. Maximum voltage of 200 volts is allowed.

Scoring.—No points will be awarded for working a station in the home State. One (1) point will be awarded for each station worked outside of the State on c.w.; three (3) points for each station outside of the State on 'phone. A bonus of fifty (50) points can be added to the final score for each Australian State or New Zealand district, regardless of the number of contacts. One hundred (100) points may be added for each country worked—do not include New Zealand as a separate country. A further bonus of 50 points may be added for each band worked. For example, a VK4 station works one VK2, two VK3's, a ZL2 and a ZL4, together with two Yanks and an Englishman; his score would be 8 points for the eight contacts, plus 200 for the Australian and New Zealand districts, plus 300 for three countries (Australasia, America and England)—total, 508 points. Should he work on three bands during the contest, he would be entitled to another 150 points, and if the contacts were on phone, the eight stations would count for 24 points—making a total of 674 points.

.....

The output of the magneto running at 2000 r.p.m. is 15v. A.C., at about 2 amps. But much more should be obtained if the coils and magnets are in perfect order, as the rating is up to 25 volts at 9 amps. The frequency is 260 cycles per second at the above speed, and so is very easy to filter. With this frequency the transformer is slightly more efficient than with 50 cycles, and has less turns per volt. The voltage is stepped up to 250 at 100 ma.

## We're in the Navy Now!

By VK3RX.

For some years we have had hams operating in the Army, and, thanks to VK3DC, the Signals, in Victoria at least, are equipped with up-to-date sets, and are successfully co-operating in Army manoeuvres.

The R.A.A.F. Wireless Reserve is doing great work with their traffic handling for the Air Force, and is, we believe, due to the enthusiasm of the men, a permanent fixture in Australia.

Now, from Adelaide comes news of ham radio in naval circles. During the last few months VHE has been heard on the 7mc band, and in a qso the other night I learned the following details:—

VHE is operated by the R.A.N.R. club at Port Adelaide, and has VK5EM and VK5MH on the job as operators. Whenever the boys have a spare half hour or so, VHE comes on the air, and they always welcome a qso with the gang.

The transmitter at present is a TNT 210 with about 15 watts input to a full wave zepp, and the receiver one of those imposing naval jobs, battery operated and plentifully be-sprinkled with knobs and switches, but just a detector and two audio inside.

Telegraphist Kelly (VK5) lives near the Naval Depot, and is regularly on the air from the Club when his duties allow. He has been to sea on H.M.A.S. "Voyager," and lets off his surplus energy, when ashore, in the good old ham way, by calling C.Q. on 7 M.C.

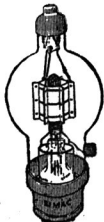
Of course VHE has other transmitters that are in regular operation, and the qrm is sometimes pretty fierce, though to hams used to D contests and unrestricted phone on 7 mc, it is not as bad as one might expect! The QRA of VHE is Naval Depot, Port Adelaide, and they always qsl on receipt of a card. Give them a shout sometime!

## TRAVELTONE RADIO.

Members of the Institute and readers generally, note with advantage the advertisement in this issue from Traveltone Radio, comprising practical men, who know their job. The new shop is in Bourke Street, in Savings Bank Buildings. It is interesting to learn that three members of the factory staff are members of the W.I.A. More about them in next issue.

In this issue appears some interesting advice to Hams regarding aerial wire and similar accessories, for which the new firm is experiencing an active demand.

BOB HURLEY, 3JH, is now at the helm of COBURG RADIO, specialising in service to "hams." Bob has seen 4 years' experience with Veall's and 1 year with Homecrafts, during which time he has met most types of hams and learned how to give them service and satisfaction. "Call round and see me some-time," he says, "and don't forget to read our ads. in the Ham-Ads. Section of "Amateur Radio."



## Eimac 50T . . .

- Treat yourself to a REAL Tube for Christmas. EIMAC 50T is the ideal for any Amateur Transmitter at any Frequency.
- First Stocks arriving mid-December. Prior Orders . . . Write NOW

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**VK2KB**

**Box 300**

**Newcastle, N.S.W.**

## Federal Headquarters Notes

The half-yearly report of the Federal Executive has been compiled and distributed. It shows a very satisfactory state of affairs generally and covers the activity of the Federal Executive since taking over in March.

**CW and 'Phone Channels.**—The suggestion that the bands be divided into CW and 'Phone channels has been referred to each division of the W.I.A., and on the result of this ballot will rest the fate of this question.

**Agenda Items.**—Agenda items for the next Federal Convention are due in the very near future and Divisions are asked to forward theirs immediately.

**International DX Contest.**—The International DX contest went off with a bang and activity was very high throughout Australia and New Zealand. In Australia VK2 and VK4 had it all their own way as far as 28 m.c. work was concerned. This contest, following so close on the R.S.G.B. 28 m.c. test, was directly responsible for the European-Australian contacts on this frequency.

**W.A.C.**—The applications accepted lately include VK4YL and VK5GW. The day does not appear too far distant when we will be accepting applications for 28 m.c. W.A.C. At the moment there are about five all level and each needs a South American. These include VK4BB, VK4AP, VK4GK, VK2HY, and VK2LZ. The R.S.G.B. advises that a special 3.5 m.c. test will be conducted during December in an endeavour to achieve some real d.x.

The results of these tests should be of great interest to amateurs throughout the world and Australian amateurs are specially asked to give their support, as they should be in one of the best positions in the world for giving d.x. reports on the contest.

These tests, using the 3,500 to 4,000 kc band of frequencies, have been arranged for December, 1935. The R.S.G.B. is making the preliminary arrangements and the A.R.R.L. have given their support to the tests and promised them publicity through QST.

It is hoped that great possibilities of d.x. will be realised and that greater use of this band will result, to the benefit of all interested in amateur radio work. Many of the pioneer transmissions, trans-oceanic contacts were made on neighbouring frequencies and after ten years experience, we should be able to show some improvement in amateur working.

To obtain satisfactory results during the test period it is asked that all stations be urged strongly to fall in with the arrangements set out in the following rules. Although this may mean some inconvenience to a few, without something of the sort QRM will weigh heavily against low power working and d.x. generally. If the low frequency end of the band is kept for work only, this will give a better chance and avoid QRM from one on weak signals.

The silent periods should give a chance of locating and logging d.x. signals, impossible otherwise, and the observance of these periods is very important. The two different times should allow many who could not use one to join in the tests.

Reports of results should be sent direct to H. J. Powditch, G5VL, Porth, St. Columb Minor, Cornwall, England, who is arranging the tests on behalf of the R.S.G.B.

## Station Description

Radio VK2XQ commenced operating in Quirindi during September, 1933, having obtained the necessary licence a month earlier. It may be of interest to state that none other than Ivan of VK2EG, and now VK3EG, received his ticket at the same examination, and naturally there was much rejoicing in the home town when the good news arrived. At this time Quirindi boasted of six "ham" stations—2HC, 2JF, 2KN, 2BE, 2EG and 2XQ—and all except 2HC were within a radius of one mile. 2HC is situated about 30 miles air line from Quirindi, and this fact was rather lucky for the town gang, as he was using rather high power, and the QRM question was much relieved.

The outfit at 2XQ consisted of a three-stage crystal controlled job, with a type 47 CO and Buffer and a 210 in the final, with an input of up to 40 watts. A full-wave 40-metre Zepp was used, suspended by 50ft. poles and fed by 60ft. feeders. The station was situated on a hill, and was an ideal location for a "ham" station, and very good reports were received from D.X. stations. The first 20 metre QSO was with OH3N1 and the second with G2ZQ. 'Phone was used on 80 metres, and all States of VK and ZL were contacted on this band on 'phone and a W9 on CW.

In May, 1934, 2XQ shifted its headquarters to West Maitland, and here a new outfit was built, consisting of a three-stage crystal job with a type 59 as a Tri-Tet in the oscillator, followed by a 46 in the buffer stage, and this stage is coupled to two type 46's working in push pull in the final. Inputs of up to 120 watts are used, and these tubes function very well. The whole outfit is of conventional design, and a separate supply is used for each stage. Keying is done in the grid circuit of the PA. The transmitter is mounted in a rack and panel cabinet built by 2WU.

Several months later the headquarters were again shifted to the back blocks of New South Wales. As the town supply at Walgett is 240 D.C., a converter had to be obtained.

The receiver at 2XQ is a three-tube battery job with a detector, followed by two stages of audio amplification. During the time this station has been on the air 40 countries have been contacted in six continents, and hundreds of lasting friendships have been built up.

## Correspondence

Bulletin Buildings, 252 George St.,  
Sydney, November 15, 1935.

The Editor, "Amateur Radio,"  
Box 2611W, G.P.O.,  
Melbourne, Victoria.

Sir,  
In your November, 1935, issue, VK6LJ discourses at length on a few of the vagaries of 56 m.c., all of which are well known.

He states, "Better still, don't use dipoles, they are N.B.G. Use an array of some kind and get efficiency."

Whilst I agree with VK6LJ that for all practical purposes involving concentrated directional propagation between fixed and/or moving points, a directive array is worth its weight in gold at the fixed point, I cannot agree with him that "Dipoles are N.B.G."

Just to show him how useful dipoles can be, it may interest him to learn that here in N.S.W., no trouble was found in getting over 60 miles direct contact between two cars, operated by 2NO and 2JU respectively, with mobile equipment and dipole antennae. In my own case, I have been able to work two-way conversation with a fixed station 20 miles distant, whilst driving along a highway at 50 m.p.h. A great deal of careful adjustment is necessary to get the best out of a dipole. It must be radiating at the frequency of the oscillator, in unison, and if this is not the case, it is more or less shock excited. It is because people appear to have trouble in making antennae do what they should, that a man named Collins created a gadget to help them along. If one is using a vertical dipole on a car it must not be overlooked that there will be considerable capacity to the mass of car in the lower half, and this half should be cut carefully to bring the system to resonance at the particular chosen frequency.

Yours, etc.,

Don. B. Knock, VK2NO.

Radio Editor.

"The Bulletin."

Bulletin Buildings, 252 George Street,  
Sydney, November 14, 1935.

The Editor, "Amateur Radio,"

Box 2611W, G.P.O.,  
Melbourne, Victoria.

Sir,

In the October, 1935, issue Mr. Phillips, of VK3CD, expresses everything about the unpleasant type of 'phone sound that every right thinking amateur feels.

The situation is intolerable. Apart from the fact that, as in 3CD's case, feminine ears are likely to be assailed by the low bred type of wit, emanating from some irresponsible youth armed with a tin microphone and gubbins masquerading under the title of a telephony transmitter, there is, in addition to the presence of the visiting YL friend of the amateur, the general public to consider.

Three years ago, it wasn't so serious. Now the amateur 80, 40 and 20 metre

bands are no longer the amateurs sacrosanct. Nine out of ten of the public are buying and using dual-wave receivers, and these receivers are often the medium for introducing the Australian amateur to the public. And what an introduction it is with the deprecations of these alleged "experimenters" offending the ears of all and sundry. After hearing the opinions of several correspondents in my daily business, regarding their idea of the average Australian radio experimenter, I am more than seriously concerned at the position. If ever the time should come when the usefulness of the Australian amateur should be in dispute officially, we are likely to get little public sympathy, just because of this bad impression. The innocent majority will suffer because of a few unsuppressed half-wits, allowed to render the air noxious, and these few continue unchecked.

The question for Australian amateurs who have the sense to take this cinematic slang type of 'phone seriously, is, what is going to be done about it? It is no good talking and not acting. I suggest that a special and ruthless vigilance committee be appointed forthwith to tabulate, observe, and report without delay to the regulating authorities, these people who overstep the bounds of experimental operation vocally. The fact is the Australian amateur is now faced with the business of policing himself. In so doing, he would be rendering a genuine service to the department, to say nothing of himself. Failure to do something about it will certainly rebound on the heads of the innocent majority in the end.

One thing is certain. Investigation will show that many of these offending 'phone transmissions originate from somebody who is not in the first place entitled to be on the air at all. I refer to the second operator farce. The second (or third for that matter) operator business is being overdone. This is quite in order when supernumerary operators at any station actually are operators. That is, they hold the A.O.P.C. Too often is the presence of a so-called second operator (usually the one taking liberties with the air), an excuse for somebody to play around with apparatus whilst having no moral or legal right to do so. How many of these "operators" can answer a call, if the answering station replies on the key? A large number of them cannot, and for obvious reasons. Anybody can mistreat a defenceless microphone, but not everybody can handle a key. Station licensees should think twice, before permitting unlicensed youthful associates to use their apparatus. Such is contrary to regulations, and will, if brought into the limelight by an authorised vigilance committee, lead to suspension.

Our regulating authorities are probably the most tolerant in the world to-

(Continued on cover 3)

## Trans-Oceanic Tests, 3500 to 4000 K.C. December, 1935

Dates 1st series December 15, 16, 17 18 (starting 2345 gmt, December 14). 2nd series December 19, 20, 21 and 22.

**Listening Periods.**—Times all G.M.T.—1st series, 23.45 to 24.00. Europe keeps silent; 00.00 to 00.15, others keep silent; transmitting all stations, 00.15 to 02.00. 2nd series, 05.00 to 05.15; 05.15 to 05.30; 05.30 to 08.00.

**Frequencies.**—To assist searching and minimise QRM it is hoped that all stations will fall in with the following frequency allocations:—3,900 to 4,000 kc, American and Canadian 'Phone; 3,850 to 3,900 kc, Canadian 'Phone 3,730 to 3,850 kc, Europe 'Phone and CW (except English stations); 3,630 to 3,730 kc, English 'Phone; 3,500 to 3,630 kc, Europe (including English) CW only. It is hoped that 'phone stations will leave these frequencies clear for low power and d.x. CW.

American and other CW stations (including VK and ZL) outside Europe have the choice of 3,730 to 3,850 kc and 3,500 to 3,630 kc channels.

**Listening Periods.**—All stations during the listening periods should call "test beru de . . ." giving their own call-signs very frequently. After the second listening period, that is, the European transmitting period, European stations should run through the dial for calls before going on the air themselves.

## Federal and Victorian Q.S.L. Bureau

(By VK3RJ, R. E. Jones; Federal Qsl Manager.)



It will be appreciated if the following stations will forward postage to the Bureau for cards on hand. The address of the Bureau is 23 Landale Street, Box Hill.:-

VK3-AI, AX, AY, BE, BJ, BK, BL, BS, BX, BZ, CA, CK, CW, DS, EM, FN, FL, FG, FC, GB, BM, GU, GV, GW, HE, HW, HH, IL, JC, HJ, JK, JL, JN, JR, JT, JW, JZ, KA, KB, KG, KL, KK, KO, KT, KV, KY, LE, LF, LM, LP, LY, LZ, NG, NR, OZ, PM, PK, PY, QL, QX, RE, RW, SK, TC, TO, TU, TV, TY, UJ, UY, WD, WE, WH, WN, MX, XK, XR, XU, YD, YF, YR, ZA, ZK, ZL, ZO, ZX.

"Buck" Bachelor, VK7JB, again complains that the power QRM, which Hobart hams are unfortunate enough to experience, excelled itself during the recent Fisk contest. The interference was of such dimensions that the local BCL's rebelled against it, with the result that official action taken has cleaned it up altogether. "Buck" concludes, "Even BCL's are useful sometimes."

QSL managers and others please note that the prefix for Mauritius has been changed from V8 to VQ8. Ascension Island which was formerly VQ8, is now ZD8.

Glorious success has crowned the efforts of the contest committee, which staged the recent VK-ZL d.x. contest, in its efforts to stimulate interest in 28 m.c. Not a little of the praise earned by VK and overseas stations by their achievements on 28 m.c., is due to the contest committee and easily over-shadows other incidents connected with the contest. An announcement that should interest all competitors appears in another section of this issue.

As mentioned in these notes in the last issue of "Amateur Radio," VK3KO has taken up residence in New Zealand for an extended period. Advice to hand indicates that he is now on the air under the call sign ZL1LM.

The first 28 m.c. WBE ever issued will be claimed by VK4BB, who during the recent VK-ZL d.x. contest worked VU2LZ, ZSH, VE4OB, G6LK and VK on that frequency. Congratulations, VK4BB. Success has rewarded your years of painstaking work on 10 metres.

## Avail yourself of ... this Offer!

In keeping with a policy of offering service to all connected with the radio industry, Messrs. Phillips Lamps (Australasia) Ltd., of 69-73 Clarence Street, Sydney, are distributing free, valuable technical communications. These communications deal extensively with valve characteristics, technique, and the application of valve types to their various purposes.

Though the compilation of these booklets involves considerable expense, if the regular service is required all that it is necessary to do is to send your name and address to Messrs. Phillips Lamps, include 6d. in stamps to cover postage, and the communications will be mailed regularly.

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Wind. 1605, W 5160.

## British Notes

This report covers activities up to  
October 30.

(1) The ZL and VK contest was well supported here, but conditions during the first week-end were definitely poor. G8CJ, G2ZQ and G5YG were busy, but signals in most cases were down one or two points compared with reports received a few days previously.

(2) It is recommended that more use be made of the signals QHL and QLH. Many calls are missed because the stations searching cannot cover the band in time.

(3) The B.E.R.U. contest for 1936 will take place in February, the senior section being arranged for the first and second week-ends and the junior for the third and fourth week-ends. The receiving contest will take place during the first and third week-ends. The event will be announced in the November "Bulletin."

(4) ZL and VK amateurs are asked to co-operate with R.S.G.B. in the 3.5 m.x. tests being arranged to take place in December. Details have been sent to all overseas organisations.

(5) On 28 m.x., LU and ZS have been worked recently from England.

(6) For the information of readers, British stations are usually active between 07.00 and 08.30 G.M.T. Conditions during early October were such as to permit VK and ZL contacts being made on either 7 or 14 m.c. at this time. It was found, however, that very few stations were using the latter band, believing 7 m.x. to be the best for evening work. Instead QRM is worse on 7 m.c. than on 14 m.c.; therefore, better contact should be possible on the latter band, providing conditions hold.

On several occasions recently W5 and W6 stations have been worked from G on 7 m.c. as late as 08.00 G.M.T. Jack Scott, ex-VK2NR, and Gavin Samson, ex-ZL4AI, are both working for Standard Telephones, as is Ron. Hope (VK7RS). The last two named contemplate running a joint station in North London.

## Rola Co. Pty. Ltd.

Our representative called at the headquarters of Rola Co. (Aust.) Pty. Ltd., 81 City Road, South Melbourne, during the month. This firm of speaker manufacturers reports good and increasing business. The manager, Mr. Webb, is in America, and is expected to return on 1st January. In his absence Mr. Yeend is carrying on the good work.

## Divisional Notes

### N.S.W. Division

#### ZONE 2 NOTES. (By ZO—VK2HV.)

40 Metres.—The best band for D.X. at this time of the year. W, XU, VE, K6, etc., can be raised with little difficulty, as can Europeans in the wee sma' hours.

20 Metres.—Not so hot, and although G, PK, PA, D4, etc., can be worked, their strength is far below that of even a few weeks back.

80 Metres.—Old Man Static seems to have taken complete control of this band, as the increasing number of night 'phone stations on 40 metres shows.

VK2ZX. — Ted Lumbewe has forsaken Sydney for Inverell, and finds D.X. conditions much better in the country; less QRM may be. The well-known prize-winning transmitter puts out an fb sig. on the 240 and 40 metre bands, whilst the receiving end is capably handled by an array of receivers, from two to six tubes. The present antenna is end fed; used on all bands.

VK2ZP.—Sticking to 20 and works all the D.X. he hears. Same old set up in use—Hartley 210—two tube receiver and full-wave Zepp antenna. Arthur is doing his best to make Inverell 100 per cent. crystal, and should soon have the new transmitter on the air, coupled to a twisted pair feeders antenna.

VK2HV. — Between rejoicing over the arrival of a junior second op. and getting a "B" Class linear amp. to do its stuff, time has been very limited. The five-year-old genny came good this summer, and has been responsible for 32 countries on 20 over the last month or two. Of the seven different line-ups in use here since last Christmas, the present one seems to be the ideal—47 CO, 46 FD, 46 FD, IO BFR, 10 modulated. PA, Receiver, 2 tube ECR and antennae Zepp and matched impedance.

#### VK2—ZONE 3 NOTES. (By VK2IG.)

A new scribe on the job, as VK2OJ is now on holidays, after a busy time during the contest. As one who doesn't live far enough away from him, I hope that VK3's will persuade him to stay in VIM for about 12 months or so. Hi! Firstly, the contest. OJ did his share, though he had a deal of bad luck. His little daughter being ill kept him worried one week-end, and a more or less punk aerial another. When he got going QRN threatened to wipe him out on the third week-end. 3EG was fortunate to be able to work O.K. through QRM when it was so bad here that signals could not be heard. He should land with the leaders. ZL's appeared to be doing fb. OJ worked 25 countries and slipped on five more, including GI. With these latter he contacted O.K. at anything up to R6, but when he

went over to them could not get the cyphers, as their sigs. had dropped to R1—fb. Hi! We now wait with interest for the result, and here's hoping for VK2. Hi!

Now for the works. 20J's on applied sanctions, when he suggested a portable rig for the holidays; so take heed, hams, if ur single! Hi! Good trip, Noel, O.M.! Father Xmas been to OJ and YI and left SSS with both. Both working fb., though Noel is going to change the intermediates. 2YI (r.x.) is about 9 or 20 tubes, and complete with 42 knobs, stabilizers, neutralizers, crystalizers and fertilizers, and still some more lizers! Hi! Been getting some D.X., anyway. EU troubled by another EU, and both on pretty often fb. Hi! When any of the gang QSO, have to use the fone to see if it is the genuine article! QE very busy business man these days and not on much. QSO'd VQS about midnight one time (home early, O.M.?) Now has mo'-bike, so if you want to check up on him read the accident columns. Hi! QD rebuilding the rig, but unlucky to be a guest of the local hospital committee with appendicitis. Hope you're soon well again, O.M., and the QRM box perking. IG not on so much lately. Been altering doublet to end fed; so far not so good either. When testing with aerial slung 4 feet high QSO'd 2DD, who reported QSA 5R7. Bad work, DD, O.M. Put up ant. to about 30 feet and sigs. only QSA 4R4 or so. What's the use of putting up an aerial? Hi! Guess length's a bit cuckoo. VK away fraternizing with the niggers at Solomon Island or somewhere. At present QRM pretty light here with everyone off the air. Hi! Come down and see us. Hi! Well, cheerio and 73's.

### Victorian Division

#### KEY SECTION NOTES.

By C. Woodward (VK3YO).

Well, the VK/ZL international contest is over, but at the time of writing nothing definite is known about the scores of the participating stations. It was not until the last week-end that conditions came good in Melbourne, and then it was possible to work practically anywhere in the world on 14 m.c. On the 7 m.c. band, the W's came in like locals, and between 7 p.m. and 10 p.m. on the Sunday night it was reminiscent of a W/VE contest. 2S m.c. was the surprise packet of the test, conditions being such that many VK's were able to QSO scores of D.X. stations without difficulty. A more detailed account of work on this band is given in the U.H.F. notes. Outstanding points noticed during the month were the almost entire absence of bad notes, the keenness of the operators, and the goodwillship extended by one amateur to another.

On more than one occasion a station which was causing QRM to another local would stand by until a rare D.X. contact



was completed; then into the fray again hammer and tongs. The contest was enjoyed by all, and, apart from a misunderstanding re the scoring for 28 m.c. contacts, everything went smoothly.

A letter has been received by VK3DP from VU2FY-VU7FY. There appears to be some doubt in VK re these two calls, and FY wishes to draw attention to the fact that he is the owner and operator of both call signs. VU2FY is used when he is in South India, but as he makes frequent trips to Mysore State he is required to use the call VU7FY when away from the home station. Although the location of these two stations is different, the address is the same for QSL, i.e., care of Coromandel P.O., S. India.

A visitor at the November meeting of the Key Section was VK6RA, who was in Melbourne on a holiday. He was accorded a warm welcome, and responded in his well known and characteristic manner, taking exactly 16 seconds to inform us that he was pleased to be in Melbourne to meet everybody and that our beer was as good as he had ever tasted.

Conditions on 14 m.c. and 28 m.c. are very good at present. On 14 m.c. FBSC has come back with that peculiar note of his, and VK3RX was heard working him with his famous "Biggetta" tube.

Another "getta" specialist, VK3OC, put over 'phone to G, whilst VK3YO managed to get a 'phone QSO with J. On 28 m.c., VK3MR and VK3YP were heard to call CQ at the same time. 3MR was answered by seven W's and 3YP by eight!

After lengthy discussion, the Section instructed the Secretary to direct the council's attention to the question of the scoring of the VK—ZL contest. Information on this matters appears elsewhere in this issue.

## 'PHONE SECTION NOTES FOR DECEMBER. (By VK3DH.)

The October meeting of the 'Phone Section was attended by the usual "loyal gang."

When the meeting had commenced and everyone had settled down we realised that one very important person was missing, namely, Mr. Jim Kerley, Chairman of the Allocations Committee. Nobody had seen or heard anything of him, and none of his worthy colleagues had in their possession the all-important "Order of Merit." There being no response to our telephone calls at his residence or place of toil, we merely had to wait developments. To cut a long story short, he had duly arrived, and all was then satisfactory.

3FW had something to say about his run of bad luck when he seemed to receive a series of unsatisfactory crystals from the "pool." This brought up the subject of how many of our crystals in circulation were really O.K. and how many were not. This subject was rather an involved one, as the pool crystals had been going around from station to station for a matter of years now, and some, no doubt, had become defective during that time, and there was the possibility of some never being quite up to standard. This question of up to standard was very aptly put by 3FW, who remarked on the positions in which one may find oneself on receipt of a crystal which had a low output. It may

have been O.K. in the original owner's transmitter, but in many cases, where insufficient amplification was available, the crystal in question may be entirely unsatisfactory.

However, after a fairly lengthy discussion on the subject, it was agreed to have those crystals which were reported to be "not so good" tested for output and frequency checked—the members to pay postage cost on the sending along of their crystals in time for the following Sunday.

This motion was put in order from 3EL: "That all defective crystals be replaced at cost of members, to be equally divided; if alterations, etc., are likely to cost too much, left to the discretion of our chairman (3TH)."

I should have mentioned this earlier, but we were very pleased to welcome back to Australia 3LN, who has been on a trip through U.S.A., etc. Len. responded in a most interesting manner by giving us a very colourful description of what he saw in his travels in the way of things and places interesting to the "ham."

3LN's first port of call on arrival in the "ham" world was a "W," who would be able to get a message through to Melbourne to say that LN had arrived safely, etc. The particular station he picked that night was only operating on low power for some reason or other—about 4KW. This particular station is set up in a house hired especially for the purpose.

To facilitate travelling around the States, Len. bought a 1930 Ford and covered about 6,000 miles altogether. He reported meeting a number of "hitch-hikers," who only require a "lift" for 500 miles or so—just to the next city. Roads there are apparently as near perfect as possible, but blow-outs still happen. To lessen this trouble they drag along the road a huge magnet, which collects the many scraps of metal that fall out of the autos. I don't think they have such antiquated things as horseshoes there.

One almost unpleasant incident occurred when Len. was passing through a city where a speed limit campaign was being conducted. Reason—18 fatal accidents in about a month. 3LN was hauled in for travelling at 52 m.p.h. where the limit was 20 m.p.h. He says that it seemed the police force were on piece work by the conscientious way they were holding up the motorists. To make things a little more cheerful (?), Len. heard later that a very short time before he arrived seven people had been treated to seven days each, "without the option," for doing a meagre 40 m.p.h.

As a result, the situation appeared rather black with 52 m.p.h. to his credit (?), but eventually good old radio came to his assistance. Somehow the subject was brought up between Len. and the Clerk of Courts. The latter, having apparently just bought an all-wave receiver, had been listening to 3ME only that morning, and when Len. said that he lived a couple of miles from that station in Australia—well, he got off with a promise to send the Clerk of Courts an autographed photograph of "the works."

I also believe that 3LN was introduced at Hollywood as being the "owner of a number of large theatres in Melbourne, Australia"—but ask Len. about that.

# Amateur Radio

## NORTH-EASTERN REPORT.

(By VK3EG.)

Everyone seems to be settling down to a quiet life again after the D.X. contest.

The 'phone interference problem was deplorable on the 7 m.c. band, but I daresay we must cast a broadminded outlook on this. If we all thought alike, I daresay life would be monotonous.

Conditions for local work are very fine at night now, and static is not very troublesome as yet. The early afternoons and evenings on 14 m.c. abound in D.X.

KA1CM says he has never heard so many VK's before as on 14 m.c. at the present and mostly everybody seems to be in on it. time. He asks requests that Australian stations kindly note that he is not the KA1CM of past years, and he does QSL. He has been heaped with abuse by numerous amateurs reviling him for the sins of the previous holder of the call.

VK2OJ has been holidaying at Frankston, and consequently little has been heard of him.

VK3JK called over to see the outfit here last week-end. Jim liked the location, especially after hearing the Yanks roll in on the speaker from a detector and two, audio, and wished he had brought his HRO super along.

VK3FN puts out a beautiful signal here, T9 B9, and breaks in.

VK2QV will be leaving for New Guinea shortly, and will be missed by all who like a rag with an old timer.

VK2LZ, 4EI, 4BB and the rest of the 28 m.c. gang are to be commended on their fine efforts.

G6WY is now coming through each day on 7150 k.c. from 0715 G.M.T.

Didn't the boys rush OA4J in the contest? Still it is a matter of just wait your turn.

D4ARR had 100 contacts with VKZL the first week-end.

VQ2R8, on 7003 k.c., is on each week-end, and wants more VK contacts round 1630 G.M.T.

FH8ST, F. Yarra, Lake Schad, Africa, also on during the test; looks for VK each Saturday—2100 G.M.T.

Yanks come through well on 14 m.c. early Sunday and Monday mornings. The long way round and signals from as far west as VE3, W7, W9 and W5 have been worked.

VK2ML obtained WAC by landing ZS2X on 40 m.x.

VK2XQ is fairly active with rotary converter to A.C., stepped up to 240 v., A.C. Quite a power house there, John, now!

VK5LD has forsaken 40 m.x. for 20 m.x now, and with VK5WJ and VK5FM work plenty of D.X. I guess you got a fright, Pete, about 5WJ's score. Hi! I was eavesdropping.

The Abyssinians seemed to have purloined part of the "ham" territory, ETF and ETV being heard at great strength.

VK2OC standard frequency transmissions and those of VK5WI come through very well and are a highly commendable service.

VK2HC has QRT for change of his residence and taking up domestic life and its attendant worries. Congrats. and best of luck, Ray, O.M.!

VK3HG has not been heard for some time.

VK3PG still working plenty of D.X., with ultra QRP.

Well, O.M.'s., cheerio and 73.

—Ivan V. Miller (VK3EG).

## SHORT WAVE NOTES.

By G. W. Manning (VK3XJ).

Since last writing these notes, our Investigation Officer (Mr. W. G. Sones) has been transferred to Wycheproof, and has installed a new receiver, on account of the area there being supplied with D.C. No details are available as to the type of set in use, but, if we know our "Bill," it will not be long before we get details and also reports on the overseas stations as they are received at his new QRA. Let's know how the noise from the mains and other sources of QRM is at Wycheproof, so as to be forewarned should it ever fall to our lot to take up location there.

This group is at the present time making preliminary arrangements as to a five-metre field day during November, and all other sections will be advised of the date on which it is to take place.

A noticeable improvement on the 16 m. and 19 m. bands during the very early evenings has been reason for such good reception on these bands. GSF, GSG, French and German stations have been received excellently here in VIM. Judging from notes published in other States, this improvement seems to be just as marked as it is here.

The next general meeting will be held very shortly, and it is the duty of this group to provide the lecturer for the evening. So, gang, come along to our next meeting full of bright ideas, etc. Don't let it be said that the S.W. Group let their so-called bright ideas become tarnished. What say, gang?

The visit of inspection to the Railways Train Control Room, which was to have been held on October 23, has been postponed indefinitely on account of our last meeting taking the form of an experimental night with five-metre receivers and transceivers; therefore no business was transacted.

The continued absence of one or two members of the gang indicates that the YL has gained precedence over radio. Boys, remember the old saying: "If the YL causes interference to your radio experiments, give up the YL." Please yourselves, but take the choice of the lesser of two evils. Hi!

All the licensed "hams" who are members of the group are at the present time undergoing instruction in the operation of the Institute's alternator, so that during a meeting night when A.C. is required for experimental purposes no difficulty will be experienced as in the past.

VK3JH is still threatening to make a determined effort to be on the air with this outfit next week-end for sure. All reports will be acknowledged, etc. What are you actually doing, Bob? Very little news at all from you.

VK3RQ (Maurie Quick) and VK3XJ have been heard working duplex on 80-metre fone in the wee small hours of the morning. Eighty metres has been full of Old Man QRN during the last few weeks, and, judging from this, it seems that the D.X. season on 80 metres is about finished for the year 1935.

**EXTRA! EXTRA!**

## KERANG STORMED BY SHEPPARTON HAMS.

### AMATEUR RADIO STATIONS DISORGANISED.

In the early morning (0630 hours) of Sunday, November 10, 3CN, 3SN, Roy Milledge, Alec McBride and the writer left Shepparton in Roy's car and set out for the city of Kerang (106 miles), arriving at 0845 hours, in time to hurl spicy remarks at 3TL, 3CE and 3HL, via Ken's Reisz and associated gear. Mr. Treb's arrival at the shack later was the cue for a run to Lake Meran. Everyone disappointed not seeing 3OR (too bad you were away, Murray). However, 3CN, 3SN and Alec disported themselves amongst the Lake Meran fishes before returning to TL's for lunch. The only set-back on the trip occurred on the return trip to Kerang. Alec became ill and missed all the good time from then on, as we were forced to leave him under the excellent care of Mrs. Rankin until tea time. As most VK3 "hams" know, Ken's sisters are FB girls, and methinks Alec was the smartest one amongst us. Hi! After FB lunch at Treb's we made off to Lake Boga, where Dud and John discussed the pros and cons of RK20's and almost monopolised the conversation. So, while the other boys were content to listen, the restless spirit of KR and DW took them off to the orange trees, where a systematic raid ensued and a grim struggle to get the spoils to the car without being seen ended in tragedy, because arrival at the cars disclosed the gang in ambush. Raid No. 2 resulted in the original raiders being almost deprived of their spoils. Hi! Next move was to Swan Hill, where Jimmy, of 3ZK, had arranged inspections of the Town Hall and picture theatre, 3SH, power house and swimming baths, and last, but not least, 3ZK. 3SH was the eye-opener! The transmitter consists of a 42 oscillating crystal, 6A6 buffer and pair of 210's in parallel for PA. Modulator is an 843, and they put approximately 1.5 amps. into the antenna. Studio and station are under same roof. Antenna system consists of two wires (common), diverging to the top of a 100ft. stick; each wire then feeds three other portions of the radiating system, and the whole affair works out umbrella fashion. Usual counterpoise runs north and south.

Returning to Kerang (we have 3KI and 3ZK with us, and, by the way, my apologies, gang, we had the pleasure of meeting Bruce Mann at 3KR's, and he's with us all the time), Bruce, Jimmy, Mrs. Trebblecock, Treb., junr., Mr. Treb. and myself were in TL's car, and the rest of the boys in Ken's "Lizzie." So far, so good; and a little later so far, no farther, for the simple reason that we have concluded Mr. Treb's car is self controlled, and at about 50 m.p.h. it QSY'd from the crown of the road and side-slipped into a beautiful spongy-mud table drain, where we promptly QSK for a time. Yep, I don't know how the rest of the party felt, but I had visions of silent key insertions in the mag., with black borders for all of us. Hi! I don't like mud as a rule, although I've a nice piece of that particular

mud hung up in the shack, with a nice blue ribbon on it, keeping it for luck. Hi! To be brief, with the help of the gang we extricated the car, put her back on the road, and arrived at Kerang without further mishap. (Suggest you put crystal control on that car, Mr. Treb.) Hi!

The boys then treated us to an excellent tea and then took us on to the local picture theatre, where we witnessed, for our especial benefit, a screening of "Twenty Million Sweethearts," and FB, too. (KR is the op.)

An inspection of the works and final drinks at the proprietor's shop concluded a trip which everyone voted T9X, Q5, R max. Thanks, fellows, and we extend a hearty welcome to you any time you care to pay us a visit.

I regret the following omission from notes last month. When telling 3OR of Roy Milledge, I remarked that he was the Borough Engineer at Shepparton. Murray calmly answered that he had five of them at Lake Meran. As you would imagine, the boys were taken aback by the answer until Murray pointed to his pack of greyhounds. Hi!

Seems that's all this time, so in conclusion the Shepparton gang wish the amateur fraternity generally a very Merry Christmas and a bright and prosperous New Year. May skeds in the coming year be as enjoyable as in the past.

73 and we'll be seeing you again in 1936.

### GOULBURN VALLEY NOTES.

(By 3DW.)

General Topics.—Some months ago 3SN built up the TRF receiver a la QST January, 1933. The rest of us plugged along with our two tubers, but after continual probing by said 3SN we went into the thing thoroughly, and within a month we have all changed over to the TRF, and glad of it, as QRM locally has now been reduced considerably and we can work very close to each other's frequency without trouble. Antennas have also received some slight consideration. 3SN and the writer have adopted 33ft. flat-top single-wire feed for 14 m.c., and Dud has retained his half-wave 7 m.c. Zepp for that band. Excepting for the new 33-footer, DW has scrapped all other systems at present, as with Collins' tuning this arrangement works very satisfactorily on 7 m.c. and 3.5 m.c. also. 3CN has also adopted Collins' tuning on his 7 m.c. Zepp. 3EL has been off for some time now, and is now back with crystal and reports plenty Yank and PK contacts on 7 m.c. 3FN also has plenty of punch on 7 m.c.

Roy Milledge and Bruce Mann both disappointed at not passing last exam. However, it's "Dogged as does it," so better luck next time, O.M's.

### WESTERN DISTRICT NOTES.

(By 3OW—3HG.)

Conditions on 80 m.x. have been rather peculiar here during the last few weeks. 3OW and 3PG—nine miles apart—run regular skeds on this band, and signals, usually R9 both ways, have been fading down to R6, and on one occasion both sigs. went down to R3 for a time.

3PG has contacted ZL on 28 m.c., but so far this band has not been tried here.

The most pleasing part of the big D.X. contest, as far as 30W was concerned, was the working of CX2AK and OA4J on 14 m.c., with a beam aerial erected specially for the job.

Good D.X. reports have also been obtained from stations due north of here, with the beam aimed at South America.

3GC is also WAC, having worked the required African.

3NQ is playing round with a 230 on 80 m.x., as a prelude to conversion to C.C.

3HG and 3PG have just finished a private D.X. contest, lasting a week, the honors going to the latter station.

3JE still in Coleraine, but has moved to another job; he is still off the air.

With contests over for the time being, there has been very little activity here, so very little to report this month, 73.

## Queensland Division

Now that all the feverish activity relating to the D.X. test has vanished one can have a QSO in peace.

Conditions during the test were fb all over Queensland on all bands, particularly 28 m.c., and our lads certainly showed the other States how to work D.X. on 10.

4AP and 4BB were averaging 12 Americans a morning on 10, and half a dozen Europeans a night. 4EI was the first Australian contact with Europe, and 4BB the first East Coast contact with Africa. It only remains for either 4AP, 4EI or 4BB to work a South American, and Queensland holds all the records. Hi! You southern boys want to wake up!

At the last general meeting Mr. J. Bates (VK4UR) resigned from the secretaryship owing to its interfering with business, and Mr. F. O'Loughlin (VK4OL) took over the job.

The address of the Institute has been changed to Celtic Chambers, George-street, Brisbane, and much better accommodation has been secured. All communications will be, per usual, addressed to Box 1524V, G.P.O., Brisbane.

### PERSONAL NOTES.

VK4BB did some fine work on 28 m.c. during the D.X. test. He was first east State QSO with Africa, and worked all continents except South America on 10. Should walk off with contest with over 30,000 points. Fb, Bob!

VK4AP is another lad who showed the southern States the how and why of 28 m.c. Alf. was the first VK contact with Ireland, and also needs South America for WAC on that band. With 26,000 points, Alf. will take some beating for second place.

VK4WH was heard quite a lot during the test, but had to work hard for his D.X.

VK4RC.—On once again with three stage crystal. 2A5 Tritet, 46 buffer and parallel, 46's P.A. With 50 watts input is getting swell reports from D.X. Good work, laddie!

VK4EI, from way up north, is to be congratulated on being the first VK to contact Europe on 28 m.c. Fb, Roy, and hope you get that South American for us. WAC on 10.

VK4UW was not heard during the test, but his E.C.M.O.P.A. is making a noise once more. Bernie uses 2A5 E.C. OSE and 46 P.A.

VK4UU.—QRL after topping the VK4 scores in the A.R.R.L. test. Bill came on to the last Sunday of the test and worked LU1CH and OA4J, which now makes him WAC, after five years. Congrats., Bill!

VK4UR.—Still getting fb D.X. with his "Shove Grab" 46's, but is thinking of going E.C., M.O., P.A., which should prevent his creeping on 20 m.x. Get to it, Jack!

VK4US.—Strange to relate, had a T9 note throughout the test, and his four-stage rig, with pair of 21's, made itself felt during the test. 14,500 points were piled up on 40 and 20.

VK4JB.—Heard now and then between trips to Roma. "Ock" works hard for D.X., but his three-stage crystal gets out well, and he is now anxiously awaiting the arrival of his WAC certificate.

VK4WT has actually put his rig in working order, after 12 months of messing around. Bill puts a nice signal into South America on 40 m.x. Fb, Bill! He uses 50-46, pair 46's, and is thinking of an 801 for his P.A.

VK4ES, of Bundaberg, puts a solid sig. into U.S.A. with his lowly 10 watts. Fb, Herb.!

VK4KA still getting plenty of D.X. on 40 and 20 m.x. I guess the north coast is the place for D.X., Syd. Hi!

VK4LB.—QRL. What's up, Joe? Have you blown those 46's already?

VK4MC puts a nice sig. into the States with his crystal rig, which ends up with a pair of 46's with 500 watts.

## South Aust. Division

By Leith Cotton (VK5LG).

The November general meeting was held on the 13th. There was a fair gathering of "hams." Plans were discussed for the cricket match against the Weymouth Motor Co. The day promises to be one of the best, and the cricket match already looks as if it will be a typical W.I.A. game. There will be 15 aside—to save chasing so many balls. Hi!

The meeting was conducted by Bill Walker (5WW), who spoke for an hour without recourse to notes on suppressed grid modulation. Looks as if a lot of VK5 "hams" will soon have this system going, if enthusiasm has anything to do with it.

VK5's big night will be on Wednesday, December 18, when the Christmas meeting, complete with supper, refreshments, etc., will be held. The night is looked forward to all the year by the boys, and there is usually an attendance of about 100 "hams." Just what goes on after the "amber lemonade" flows is only VK5's business. Roll up, chaps, and make this a night of nights.

And now for the scandal!

5WI is heard on 'phone in ZL, and claims it is the only VK5 'phone heard in VK4.

R.I.P. 5WR suffers a bereavement. He lost his pet 210, aged 10 years.

5FM and the W.I.A. Secretary (Marshall Hider) were overheard talking re-

frigerators. Pete must be thinking of cooling down that 800 of his.

5KL shifts from D.X. hunting to B.C.L. entertaining. Oh, Clarrie!

A new call sign. 5LB told me he worked W3 Something-or-other.

5GC says he is just mucking about. QYL?

5LY is a serious contender for the D.X. stakes. He is having a race with 5XA for countries worked.

Have heard nothing of the Granites crew—5EK, 5DT, VKZ and Co.

5ML (Geofe Coombe), now being a sailor, his brother Jack is swotting to keep the famous 5ML call alive.

5WW sold his super. Bill must be going to try a crystal set.

5GP has got two 211E's. He wants to know if a 201A will drive them.

5DK, Tom Robins, objects to being called a policeman. The gentleman with police aspirations is Ken. Davies (5KD).

5MK has been learning electric arc welding. Jack must be going to make some thermo couples.

5GW and 5GK are posted among the missing. Much RF has flown since Freddie last punched a key, and George likewise.

One of VK5's kid better "hams" (5AL) was heard on again with a QRP rig from a country location. Rig was a 201A, with a 90-volt "B" battery.

5FR is building an audio amplifier, using a 50-watt tube as final. Don't wear headphones when you listen to it. Colin. It will be cheaper—and, incidentally, more comfortable—to buy a speaker.

Great news! 5LP walks again, after eight years in bed. Congrats, Laurie!

5FW has a nice shack, the wiring of which will give any spider a headache.

5DC is the only VK5 "ham" to boast of a stereo and "Hi—Fidelity"!

5FL recently married his second op. That's one way to keep "ham" radio alive, even though in double harness. Said YF having designs on amateur ticket.

5HR, of Bute, is heard in the city with a nice T9 signal from a Tritet, using a 42. Power supply is a Ford coil.

5FB (Frank Brandon) is still rushing around the country and pumps out a nice sig. from his portable, 5FBX.

In these days of crystal control and sniggle-sniggle snoopers, how is it that some "hams" still tolerate prehistoric A.C. notes? Sometimes I even feel inclined to agree with the famous "QRZ."

5TX is trying to paint the town various colours. He is a house decorator.

Ex-5GO (George Gurr), now stationed in New Guinea, asked the Technical Development Section if the output of one glow-worm would drive two fireflies in push-pull. Could the TDS supply him with a frequency meter for this rig?

5RD is too busy with the law of the land to worry about the radio band.

5MY is afflicted by that horrible disease, YL-itis.

Rumour has it that 5SU is in the same condition.

5LD told me I cause clicks in his receiver. At 400 yards air line, who can blame me?

Heard 5LC on again. Bet he had a busy time getting through the cobwebs to the perk.

Who was the sad-faced person behind the bride in the recent scoop picture in

"A.R."? Was it 3CX's tailor or father-in-law? Hi!

5DA has turned himself into a radio personality. Was heard the other night giving a talk over a local broadcasting station.—73.

## West Aust. Division

(By Jack Mead, VK6LJ.)

"Calling all cars! Calling all cars! I beg your pardon, I mean—"

"Calling all hams! Calling all hams!! Daddy Christmas calling you from the land of Arr. Heff!! "And once again he pays us a visit. I don't know what he's bringing you, but he's dropping me a 250 watt and a 45 volt battery for H.T.! Hi!

Well, gang, now to get serious. The latest lecture was by 6MN on 28 m.c., which reminds me that that band was extremely active during the contest. 6SA was the only occupant and qsoed EI, G, ON and numerous other European countries. 6FO was another who did rather well. Thanks to 6DJ, who, as usual, did the qsoing part! Among other starters were 6KZ, 6MN, 6FL and 6LJ. 6MN had to make a trip to the mulga during the test, and missed the latter part.

Quite a few alterations have been made at Headquarters—numerous petitions have been erected and the general layout considerably improved. We must express our thanks to Mr. G. Wignell and confederates, who caused this sensation!

Our latest field day was held on November 24, and consisted of a transmitter efficiency field test. Members brought gear and antenna system along to a common point and were hooked up alternately to a power supply. Field strength measurements were taken from a point some distance away, and a percentage of efficiency obtained. An article on this will be supplied later! The classes continue to swell each night and they are under 6BN and 6JS for theory and 6RL and 6AE for Morse. The social committee keeps going exceptionally well, and are busy arranging more outings and Field Days, especially now summer is here. It actually has arrived, Hi!

6AE must be too busy with the classes. I haven't heard him, and his chirps. Hi!

6AC gone to the bush on a service job and wonders when the service is coming!

Smile please, now watch for the "Dicky Bird"—that must be 6BB!

Hello! Hello! Our mechanic on the telephone—6BN.

Our super-salesman, 6CB, and general boss, still mucks around but not on the air.

6CX nearly dropped dead when a copy of the constitution arrived from F.H.Q.

6CY not heard of much.

6DA also as before.

6DH, another as above—but Dave is qrl service work, Fb.

6FG using a new antenna. I don't know when he uses it but can see it up! We still live in hopes of hearing him.

6FL, on 14 m.c., gets a bit of dx!

6GW away on holidays, but will be on again for Christmas.

6GM will have a special Christmas programme, too—46's seem O.K. still, George.

6JE has got his FBXA at last, and gets fb results. Yaxx by the dozen!

6JK chops up the local bodies and generally plays at butchers.

6KZ heard on 7 m.c. very often and has totalled a good score in the test.

6LK, up Northern, and 6LR must be confederates, as neither of them is heard at all.

6MN, on 7 m.c., after his holidays and glad to get back to work. Oh, yeah!

6WI on during the field days, but otherwise only students and tutors use it.

6KO reckons he is on 5. Nobody can prove he is wrong!

"Oi, aye!" Say, who is the blooming Pommy? Oh, sorry I didn't notice it was 'ole Bill of 6WS.

And, finally, the VK6 gang, one and all, wish all divisions and all hams a very Merry Christmas and a Bright and Prosperous New Year. May "Amateur Radio" reign forever.

## Tasmanian Division

### TASMANIAN NOTES.

(By 7PA.)

The general meeting was a week late this month, having been held on the 12th, in place of the 5th, as would have been normal. The delay was made to provide for including a special meeting called for same date. A fair muster of the gang was witnessed. General business consisted of the usual bunch of accounts and correspondence. The meeting had the pleasure of welcoming a northern member-visitor in L. Clark (Poly). 7CK, who was heartily received.

At the conclusion of the general meeting the special general meeting was opened, and the matter for consideration was introduced by the chairman. This constituted the consideration of additions necessary to Article 27 of the Articles of Association, governing the membership status, there being no definite stipulations whatever apart from nominating the grades and defining their magnitude. A lively discussion ensued before the matter was settled. The final decision (majority) was to set out that a member, irrespective of previous grade or age, must become a full member on attaining a A.O.P. Certificate, whether taking out a station licence or not. All other details to remain as at present. This was an amendment defeating the motion.

The VK-ZL contest has occupied at least one member solidly, and one or two others more or less so.

7JB has been very busy with this contest, and has run up somewhere in the vicinity of 6,000 points. He was successful in making several 10-metre contacts on Sunday, October 27, into the bargain, which gave momentum to his points.

The 10-metre band here seems to have shown the same improvement as it has elsewhere of late. 7KV has made a number of contacts on this band also. While speaking of 7KV, it might interest the gang to hear that he has contracted YL-itis, and is suffering pretty badly at the moment; so if his key is silent for a while

don't worry. It's a very nice attack, I understand, Keith!

Quite an amount of five-metre work is going on here at present I believe, but no details are available at present. 7BJ, 7KV, 7CW, and I believe 7JB and 7NC, are doing their bit on this band. Some, I hear, are working early evening schedules, although nothing has been heard of them here at 7PA, where a couple of transceivers are built up and seem to be working O.K.

The 200-metre band has been almost deserted of late, 7CW being the most heard (not too sure of 7LJ's activity at present). 7CS had a spell while moving his quarters to the city side of the Derwent. 7PA had a spell also, and 7JB was too QRL with contest, but was testing on Sunday, 10th. So all are on again to keep the B.C.L. occupied for the present.

Another field day was conducted on Sunday, October 27, and took the form of a social run, YL's, YF's, etc., being included, and Jack Morris even took Napoleon. Hi! But who took Jack's car? Brown's River was selected, and the 80-metre band used for transmission, with a ten-mile radius stipulated. The country in this area being rather hilly makes hunting interesting, and some got well away as usual, signal strength varying a lot in some places and thus causing some confusion. 7CW was first to locate the hide-out, which proved to be overlooking Brown's River from the Hobart side, under the slope of the hill via the old road that leads to the beach. Some had to open their envelopes, always provided at the start, time beating them to it. The transmitter was powered from a small generator, a half-wave 80-metre single-wire matched impedance aerial was used, and a hefty signal was radiated. At the conclusion of the hunt all went over to Blackman's Bay beach for the remainder of the day, and in all a very enjoyable outing was had.

Since this event a meeting has discussed another field day, which, most likely, will be the State Field Day again. It is suggested to make use of the five-metre band if sufficient interest can be raised, and I have little doubt about the question of interest, five metres being talked in all quarters. It is to be hoped they pick some open country for a start though. Hi! Hope to detail this event, possibly with a short article, after its conclusion.

5LG found this cutting in a paper, and reckons it applies to 99 per cent. of the "hams" of to-day:—

### HAVE YOU NOTICED?

When the other fellow is set in his ways, he's obstinate; when you are, it's just firmness.

When the other fellow doesn't like your friends, he's prejudiced; when you don't like his, you are simply showing that you are a good judge of human nature.

When the other fellow tries to treat someone especially well, he's toadying; when you try the same game, you are using tact.

When the other fellow picks flaws in things, he's cranky; when you do, you are discriminating.

When the other fellow says what he thinks, he's spiteful; when you do, you're frank.

—"Reynolds' News" (Eng.).

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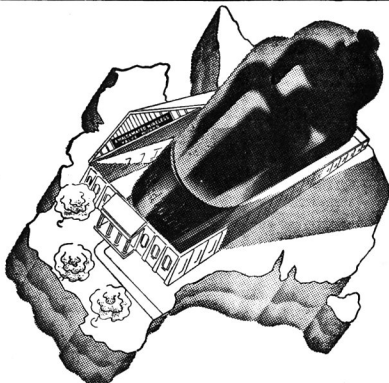
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## R.A.A.F. Wireless Reserve Notes

### FEDERAL NOTES.

(By the O/C., 1A1—3ML.)

There are possibilities of an improved training programme early in the new year as soon as the R.A.A.F. has settled down after the expansion of recent date. It is unfortunate from our point of view that all personnel and equipment available in nearly every direction are being used to the utmost to train the new members of the service.

The position might be hard for country members to understand, especially in view of the newspaper statements that several million pounds have been made available to the R.A.A.F., but, it should be realised that this has been owing for some years and the expenditure is really only bringing the service up to date. However, with the advent of the two new squadrons, one at Perth and the other at Richmond, the prospects of much closer co-operation are brighter. The employment of Reserve stations has not been forgotten and within the next 12 months our ambitious hopes will be fully realised. In the meantime, the issue of crystals, which should take place by the time this magazine is printed, will, undoubtedly, aid the organisation. Half of the ordered number are ready for distribution, complete with holders.

### SECTION—2nd DISTRICT NOTES.

(By 2A1.)

In this district the untiring energy of 2Z1 is beginning to bear the fruit it richly deserves and enquiries are arriving from all quarters regarding the underlying principles of this organisation.

This month also saw the beginning of a new feature in our Sunday night watches, namely the practice message which is passed round all those stations on watch at the time.

Notwithstanding the fact that I am spending the day-time in a smelly laboratory and the night in an even more odorous place, trying to absorb chemical principles, I have managed to rig up the old gear in the garage and can shock-excite a half-wave 40 metre aerial on 3,550 Kcs for Reserve work. Suddenly returning after being so long off the air, has brought very forcibly to my notice the great improvement in the N.S.W. Branch of the W.T. Reserve, and I feel sure that given a reasonably fair break, we will yet make the VK3's sit up and take a lot of notice.

It may be interesting for some of the boys to know that 2D1 at Telegraph Point, up the North Coast, uses only two watts and puts a T9 RS signal all night into VIS. Another fine operator, 2A2, uses a hand wound generator for his high tension. This interesting piece of apparatus is worthy of more than just a passing word, and hence you have the following description of what can be done by a resourceful Reservist. However, this description is as I received it one night when the QRN was only RS on the 80

metre band. It would seem that the transmitter uses a wecovalve CO, with a fine slab of galena reluctance, coupled to a pair of 190's in cascade. The high tension is supplied by a hand turned generator delivering some 6T watts, while a simple system of belts, chains and worm drives from the generator shaft simultaneously works the chaff-cutter and the cream separator. The steam from the cascade cooling the 190's is used to sterilise the milk cans while the unsilvered spots on the valve envelopes are good for examining eggs for fertility. Apart from this it has a very economical rig, and his fire leaves little to be desired except a water-cooled pen to copy it.

The Reserve in this district has been dogged by more than a fair percentage of bad luck. 2A2 has been kept worried lately by a sick wife and family, yet hardly missed a watch. Mrs. 2A5 has also been unwell, and 2Z1 has made himself sick reading Reservists' reasons for inactivity, while the only bright spot has been that 2A1 has kept off the air and given them a fair break.

We now have quite a good network of stations in N.S.W. with Reservists operating from Leeton and Canberra, in the South, Broken Hill and Cowra, in the West, Telegraph Point and Wyrong in the North, and a group around the Metropolitan area. 2Z1 tells me that the response to his circulars to non-members is very satisfying and seems to be pulling in the right type for the Reserve.

It has occurred to me that 2A2's transmitter (not as previously described) would be ideal as a standard R.A.A.F.R. job. A single tube Hartly, using crystal lock, and I hope shortly to have some detached notes on it for publication, because I think that a separate Reserve transmitter is desirable for consistent working of schedules.

"A" Section.—October traffic returns: 2A1 transmitted 3/42, received 3/36; 2A2 transmitted 24/664, received 32/829; 2A3 transmitted 7/145; received 12/504; 2A5 transmitted 9/104; received 7/124; 2A6 transmitted 2/101; received 3/107.

"B" Section.—No report received, but stations active were:—2B1, 2B2, 2B4.

Mr. Woodman is absent in Melbourne on holidays for two weeks.

### 3rd District.

(By 3Z1—VK3UK.)

VMC have been marking time this month awaiting the arrival of our new section crystals. All the preliminary organisation is complete and the change-over should be made without any difficulty. It certainly will enable section traffic to be gone through with an ease never before possible, and also will give all stations much needed practice in channel and group working. There are so many ramifications of the normal work that will be possible that we shouldn't have a dull moment for months to come.

3B3 has been the recipient of showers of congratulations this month on two counts and we would like to add ours on

the arrival of a son and heir and also on winning the Reserve Section of the last Fisk contest. Allan has been right in the running for our annual trophy each year and it seems only right that he has won it for 1935-36.

3B1 has left on another country tour with a portable transmitter-receiver. The former consists of a single 46 C.O. keyed in the aerial. All schedules will be kept while he is away and he is hoping to contact most of the boys, especially over week-ends. Listen for him, fellows, on his Reserve frequency.

3A5 has our congratulations as well as those of all VMC members on at last gaining that coveted W.A.C. Gordon contacted a South American late last month. We had a flying visit from 3A6 a week or so ago, but owing to pressure of work at both ends we were only able to manage half an hour's chat. It was none the less enjoyable for its brevity though. We hear from him that 3RS seems to be so snowed up with work at 3VR that it is unlikely he will have any time to devote to 5 metres for some time to come. We are looking to Ray to help the Shepparton boys onto the band as a preliminary to a big effort to effect a Melbourne-Shepparton contact.

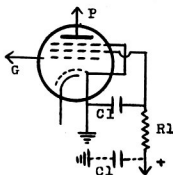
We hope to have four new men in VK3BS, VK3VW, VK3FN and VK3OD at work in an active section before the end of the month and in extending them a welcome we want to assure them that all old members will be only too pleased to help them in any way so that they can settle in quickly. 3C4 spent the four weeks spell from schedules during the DX contest in completely rebuilding his transmitter. From all accounts it is a great job. 3C5 is taking on yachting again this coming season, so VMC3 is going to be without his services on Sunday schedules during the next five months. There are two vacancies at the moment for country stations. Any ham who is desiring to join up with the Reserve get in touch with me as soon as possible as these vacancies will soon be filled.

## 5th DISTRICT NOTES. (By 5ZI—5SU.)

Watches are being held on 7317 Kcs each Sunday and members are being instructed in the use of the more uncommon procedure signals. 5ZI would like to continue schedules with VMF and suggests that Monday night, after Federal watches, be employed for this purpose. 5A2 listened last Sunday morning for the VME watch and discovered that his battery was flat at about 1,000 hours. 5ZI would like to hear from 5A5 and 5A6, 5A2, 5A3, 5A5, 5B1, and 5ZI are all active and watches are being maintained on Mondays on 4155 Kcs.

## A Correction

VK5ZR wishes to point out that the position of the screen grid by pass condenser, as shown in the circuit last month in the article "A single stage 3-band exciter unit," is incorrect, and that shown in Fig. 1 is correct. He says that this condenser **MUST** be on the tube side of the screen dropping



C1 = S.G. by pass condenser  
not connected as shown  
by dotted line.

R1 = S.G. Dropping resistor.

resistor R1. (To leave the C1 in the dotted line position as well as another C1 in the correct position would be rather an advantage in that it would form a decoupling arrangement and perhaps improve the operation. However, this is only a suggestion for experimentation.—(Tech. Ed., A.R.)

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unless paid for in advance See Panel.

(Continued from page 15)

day, but if complaints are increased, as  
they are likely to be with a surfeit of  
these hideous transmissions, they can-  
not be expected to regard the present  
day Australian amateur as an asset to  
the community, as he was once regarded.

Australian amateurs have quite enough  
to do to keep equilibrium with the  
public and the authorities. There is  
always the question of interference with  
broadcast listeners, and experience shows  
that the amateur is too often blamed  
for interference totally dis-associated  
with his activities. If on top of this, the  
public forms the opinion that amateurs  
are just a lot of "movie slang HI HI  
merchants," the amateur's stock is going  
to fall rapidly. Let us check that fall  
drastically before it is too late.

Yours, etc.,

Don. B. Knock, VK2NO.

Radio Editor.

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